

Lead Service Connection Management Program Report

Date	May 19, 2021
To	Operations and Community Services Committee
From	Citizen Services
Service Area	Water, Waste & Environment
Item No.	OCS21-17

RECOMMENDATION

The Operations and Community Services Committee recommends that City Council:

1. Approve a fifteen-year lead service connection replacement program (Replacement Option 2), with a target completion year of 2036.
2. Approve the **mandatory** replacement of a private side lead service connection when a City-owned lead service connection is replaced.
3. Approve Program Support Options 3 and 4 that will offer payment options up to ten years for qualifying property owners for private side lead service connection replacement.
4. Approve the additional financing required to accelerate and enhance the Lead Service Connection Management Program, which includes an additional two per cent Utility rate increase in 2022 and will be part of the 2022 Utility Budget approval process.
5. Instruct City Administration to bring back a report detailing the necessary amendments to *The Regina Water Bylaw* for the approved program changes.
6. Remove MN19-23 from the List of Outstanding Items for City Council.
7. Approve these recommendations at its meeting on May 26, 2021.

ISSUE

There are approximately 3,600 City of Regina (City) owned lead service connections (LSCs) remaining in Regina which may contribute to elevated lead levels in affected residents' drinking water. Approximately 95 per cent of water service connections in Regina are not lead.

Replacing only the City owned portion of LSCs through the current Lead Service Connection Management Program (LSCMP) (Appendix A) does not solve drinking water concerns if lead plumbing material also exists on the private side. Disturbing the service connection when replacing the City side may also result in increased lead concentrations in the water at the tap.

The purpose of this report is to obtain Council approval to move forward with developing an enhanced and accelerated LSCMP. This report identifies the proposed changes to the program at a high level. If Council approves of this new direction, Administration will bring forward a second report in quarter four of this year that will provide further details of the program and the amendments to *The Regina Water Bylaw, Bylaw No. 8942 (Water Bylaw)* required to implement the new policy direction in this report.

IMPACTS

Financial Impact

The current LSCMP is funded by the Utility Fund. The recommended Program Support Options (Options 3 and 4), and recommended Replacement Option (Option 2), would continue to be funded through the Utility Fund. The cost associated with the private side replacement of LSCs would be funded by the property owner and the Utility Fund will cover any deferred financing options selected by the property owner. The Utility Model Base Case (UMBC) proposes a three per cent annual rate increase in each year 2022 - 2024 to meet the objectives of the Utility. Accelerating the LSCMP by 15 years (completing the LSC replacements by 2036, instead of 2050) and providing additional support to residents through the recommended options would require an additional two per cent increase to the Utility rate above the UMBC in 2022, for a total recommended rate increase of five per cent in 2022. A two per cent Utility rate increase would result in approximately a \$3.16 per month increase for a typical residential customer.

The two per cent Utility rate increase funding is required to cover the increased capital cost for accelerated LSC replacements, as well as three additional full-time equivalents (FTE) to manage the testing, communication and coordination required to facilitate replacement of private side and City side LSCs. No additional debt is required above the Utility Model Base Case (UMBC) for the recommended options. The capital cost to replace the approximately 3,600 City owned LSCs is estimated to be \$36 million. Support across the organization will be required to administer the new elements that the recommended options add to the current LSCMP. The capital cost to replace approximately 7,000 - 8,000 private side LSCs is estimated to be \$50 to \$70 million and is funded by the homeowners.

Program Support Options 3 and 4 recommend allowing property owners to defer payment of the private side of their LSCs and apply the cost to their property taxes. Although these options have direct cost impacts to affected property owners, they provide an extended five year payment option, as well as a ten year option for property owners who qualify for the City's Affordable Access Program. The recommendation to provide property owners with deferred payment options will result in a financial impact averaging \$1.8 million per year, until all deferred payments are received, up to a maximum of 10 years after the final replacements occur. Over the life of the Utility model, this portion of the funding will be paid back by residents. The financing of this program will be funded by the General Utility Reserve (GUR), and the GUR would be maintained within the minimum (\$25 million) and maximum (\$90 million) reserve balances.

Overall, the recommended options will require additional funding and resources. If additional funding is not approved, a deferral of planned capital work will be required. Risks associated with the deferral of capital work, such as not replacing aging infrastructure or delaying drainage upgrades, could result in unforeseen costs. The deferral of capital work poses risks to service delivery and may lead to increased service disruptions and other negative service level implications for water, wastewater and/or drainage services. If City Council approves the accelerated LSCMP as recommended without the recommended two per cent dedicated Utility rate increase, it will result in approximately a \$1.95 million per year funding gap. This would result in approximately two kilometers (kms) of watermains not renewed each year for the next 15 years. The deferral of 30 kms of watermain renewal will result in more watermain breaks and water service disruptions to residents and increased operating expenses to repair the watermains.

Risk/Legal Impact

On July 3, 2020, amendments to *The Cities Act* came into force that allow the City to enter into agreements with property owners for work on the private side of the property line to be done by the City and paid over time with the unpaid balance added to the taxes over multiple years without late payment penalties. This is as long as the person is making the payments according to the agreement. The new provision now allows for the City to cover the capital cost of the LSC replacement on the private side and for the property owner to reimburse the City for this expenditure over time.

The Regina Water Bylaw will need to be amended to detail the new LSCMP.

Policy/Strategic Impact

The LSCMP is consistent with *Design Regina: The Official Community Plan (OCP)* as follows:

- An advanced and accelerated program, consistent with the recommended options, will exceed the industry best practices for managing LSCs by completing the work prior to 2050 (*OCP D4 Goal 1 - Safe and Efficient Infrastructure*).
- Additional financial resources to replace City-owned LSCs helps make the City's LSCMP accessible to all property owners of Regina (*OCP D11 Goal 5 - Social Inclusion: 13.19*).

- The advancement and acceleration of the LSCMP will enforce the replacement of the private side LSCs when City-owned LSCs are replaced, helping to improve the condition of existing housing stock (OCP D6 Goal 2 - Existing Housing Stock: 8.9).

Environmental Impact

City Council set a community goal for the City of achieving net zero emissions and sourcing of net zero renewable energy by 2050. In support of this goal, City Council asked Administration to provide energy and greenhouse gas (GHG) implications of recommendations so that Council can evaluate the climate impacts of its decisions.

Due to differences from one property to the next, it is difficult to determine a single representative value for increased GHG emissions resulting from the enhanced pace of LSC replacements. All LSCs would be replaced eventually, making that part of the program not contribute to increased GHG emissions, but when the work is accelerated and done as “one-offs”, it cannot be completed in conjunction with road construction or other construction work. This results in some duplicate asphalt and concrete work, including placement of asphalt, curbs and possible sidewalks resulting in an estimated additional one to two tonnes of carbon dioxide equivalent per line replacement. The production of asphalt and concrete make up the majority of the GHG emissions with equipment placing the material accounting for a small fraction.

OTHER OPTIONS

The options are separated into replacement timeline options and Program Support Options. When determining the elements of the recommended Program Support Options, as well as the target completion year of the recommended Replacement Option, Administration performed a scan of other cities’ strategies for LSC replacements (Appendix B). Based on the municipal scan, Program Support Options 3 and 4 (recommended) are closely aligned to Saskatoon’s Long-Term Lead Service Line Replacement and Water Main Capacity Improvement Strategy for structuring the payment support guidelines.

Replacement Options (Target Completion)

Administration is recommending Replacement Option 2, which is a 15-year program. Shown below are three other alternatives: status quo and two accelerated options. The recommended replacement option attempts to balance the affordability of an Utility rate increase, and the increased construction and disruption to residents with the need to replace the LSCs.

Replacement Option 1 2050 Completion (Status Quo)

The current approach focuses on opportunistically managing City owned infrastructure where the City knows LSCs exist. This includes:

- Replacement of City owned side of LSCs when they break or during planned major road upgrades.

- Replacement of City owned side of LSCs during redevelopment of an existing property with a lead service connection.
- Property owners can apply to have the City owned side of their LSC replaced at no cost to the resident when the private side has been replaced.
- Replacement of approximately 120 City owned side LSCs per year on average.
- This option does not require any additional Utility rate increase above the UMBC or deferred capital work.

The status quo has no increased cost implications and is in the existing Utility model. In addition, residents would not experience an increase in construction and disruptions due to an accelerated LSC replacement schedule. Currently, the primary issue is that the private side of LSCs is not replaced in conjunction with the replacement of the connected City owned LSCs.

Replacement Option 3 2031 Completion

Advancing the target completion to 2031 (10-year replacement program):

- Increases the number of LSC replacements per year by 240, for a total of approximately 360 LSCs per year.
- Increases the necessary budget by \$3,390,000 per year for replacements of City owned LSCs.
- Increases the Utility rate by a dedicated two per cent in each of 2022 and 2023, which would result in a combined increase of approximately \$6.40 per month for a typical residential customer.
- Requires three additional FTEs for administration of the program.

The advantage of this approach is that all City owned LSCs would be replaced in 10 years. The funding required to accelerate the LSCMP to 10 years is significant and would have an impact on Utility rates to fund the accelerated program, as outlined above. In addition, advancing the LSC replacements to be completed in 10 years would have a significant impact on the disruption residents would experience due to the amount of construction required. This accelerated program would have an impact on residential roads and further details are outlined below. Due to the accelerated timelines of the LCS replacements, there would be fewer opportunities to coordinate the road renewal program with the LSC replacements.

Replacement Option 4 2026 Completion

Advancing the target completion to be completed by 2026 (five year replacement program):

- Increases the number of LSC replacements per year by 600, for a total of approximately 720 LSCs per year.
- Increases the necessary budget by \$7,890,000 per year for replacements of City owned LSCs.

- Increases the Utility rate by a dedicated three per cent in each of 2022 and 2023, and by a dedicated one per cent in each of 2024 and 2025, which would result in a combined increase of approximately \$14.26 per month for a typical residential customer.
- Alternatively, approximately \$40 million in additional debt can be utilized and paid back over time. This additional debt is over and above the required debt to fund the UMBC. This approach would have an impact on longer term Utility rate increases, as the interest/principal would be paid back over the life of the model.
- Requires five additional FTEs for administration of the program.

The advantage of this approach is that all City owned LSCs are replaced in five years. The funding required to accelerate the LSCMP to five years is significant and would have a large impact on Utility rates to fund the accelerated program as outlined above. Utilizing debt to fund the accelerated LSCMP would smooth out the increased utility rate required to fund the program. However, it would reduce the overall debt allowance available to the City for other high priority projects that may be required.

In addition, a program this large would have significant water service and roadway disruptions in the City for five years and would be difficult to effectively coordinate with road preservation. This may result in recently paved roads excavated and could also expedite the need for replacement of roads.

Below is an overview of the current road network as it relates to the LSC locations. There are 115.7 kms of roads within the City that have at least one LSC underneath the road surface.

The following table shows a breakdown of the roads with LSCs by road function.

Table 1: Roads with LSCs by Road Function

Road Function	Percentage	Length (km)
Arterial	19 per cent	21.7
Collector	6 per cent	6.4
Local	76 per cent	87.5

The following table shows a breakdown of the roads with LSCs by overall road condition.

Table 2: Roads with LSCs by Overall Road Condition

Road Condition (Overall)	Percentage	Length (km)
Excellent	12 per cent	14.0
Good	34 per cent	39.2
Fair	41 per cent	47.8
Poor	13 per cent	14.8

With a five year or a ten year LSC replacement program, there will be roads in excellent and good condition that will be disturbed during the replacement of the connections identified on those streets. As noted in Table 2 above, 46 per cent of the roads with LSCs (53.2 kms) are in good or excellent condition.

Cuts in a roadway surface for the LSC replacement, especially on good or excellent condition roads, will have a significant weakening effect on road structure and will shorten the life expectancy of that roadway. When asphalt pavement is cut it not only shortens the life of that section of roadway, it also reduces the smoothness of the ride for vehicles travelling over it.

While roadway cuts do impact roads in fair or poor condition, the overall impact is less, as these roads are already further along in their average lifecycle with other factors also contributing to the deterioration.

The tentatively planned work under the Residential Road Renewal Program (RRRP) from 2021-2026 has approximately 16.7 kms of streets identified where there would be an overlap in priorities for road renewal and LSC replacement. Therefore, Replacement Option 4 would add 70.8 kms of local roads impacted by the LSC replacement program not currently identified for road renewal within the next five years.

The RRRP is funded through a tax levy that all residents throughout the city contribute towards, with the target of improving the overall health of the residential road network. If the road renewal strategy is adjusted to solely align with the LSC replacement plan, it is anticipated that many residents outside the areas with LSCs would have concerns with the deviation from the RRRP's original preventative maintenance strategy to improve the overall health of the network.

Under Replacement Option 4, an average of 23.1 kms of major and local roads would be impacted by the LSC replacement work annually over the next five years. If existing road renewal programs are to fund the associated renewal work associated with this option, the RRRP and Street Infrastructure Renewal Program (SIRP) would be required to support the renewal of 17.5 kms and 5.6 kms of work annually. Alternatively, associated road rehabilitation work could be funded through the Utility Fund for locations where no overlap in priorities between programs exist. It is estimated that approximately \$11.1 million would be required annually to complete the road renewal on the 98.9 kms of roads (major and local) impacted by the LSC replacements which are not currently identified in future plans for the road renewal programs and are not incorporated into the current cost of the LSCMP options. For all the replacement options presented in this report, the road cut will be restored. However, the overall road will not receive an upgrade treatment unless the work can be aligned.

Program Support Options

Administration is recommending Program Support Options 3 and 4, which includes the following elements:

- Administration will facilitate the mandatory replacement of the private side LSCs in coordination with the City owned side of the replacement.
- Administration will offer payment options to all property owners with LSCs to reduce financial impact on residents.

Below are two alternatives.

Program Support Option 1 (Status Quo)

Currently, private and City owned LSC replacements are not coordinated and private side LSC replacements are not mandated at the time the City owned LSC is replaced. There is currently no construction facilitation or financial support available to residents when the private side of LSCs is replaced. As part of the current LSCMP and as part of the 2021 Utility budget approval, City Council approved an annual water filter with replacement cartridges for eligible residents. Residents can receive an annual water filter with replacement cartridges or a rebate of up to \$100 to purchase their own water filter.

Approximately 20 per cent of eligible residents have taken part in the Lead Removal Water Filter Program. If the remaining 80 per cent of residents with a City owned LSC choose to take part in the program, the cost would be approximately \$250,000 and is funded by the Utility fund.

Further details of the status quo option (including water testing options for residents) are found in Appendix A.

Program Support Option 2

This option would require mandatory replacement of the private side LSC at the time that the City owned side is replaced. Best practice for managing LSCs strongly recommends that the entire LSC line be replaced to reduce lead at the tap. Administration would facilitate the construction coordination for the entire replacement, but this option would not offer deferred payment options to property owners. This option has limited financial impacts for the City but may impose unmanageable financial cost to individual property owners, as it requires full payment of the private side of the LSC at the time of replacements.

COMMUNICATIONS

Pending Council's decision, work will continue with the Communications & Branding Department to ensure public education and awareness on the enhancements to the LSCMP. Information regarding the current LSCMP is available at Regina.ca/leadservice.

Activities for 2021 will continue to focus on providing information to residents and property owners that may have City owned or privately owned lead service connections. This information includes:

- Annual notification letter and brochure that advises residents and property owners about the LSCMP, including filter and testing options.
- Notification letter to property owners affected by construction, where the LSC could be disturbed and options available through the LSCMP.
- Information on Regina.ca, including a video with directions on how to identify the private side of a water service connection, as well as a map that highlights areas with known City owned LSCs.

Administration will work with community associations to help eligible property owners or tenants further understand the LSCMP. Administration will seek advice from the community associations to seek out new opportunities to reach those who might otherwise be hesitant or unable to contact the City.

DISCUSSION

The water received from the Buffalo Pound Water Treatment Plant (BPWTP) and in the City's water mains is free of lead, meeting the City's regulatory obligations. If the water touches materials containing lead, lead can enter the water. Lead can be found in some water service connections, which connect the water mains to individual buildings, and in the plumbing inside some buildings.

Several factors determine whether and how much lead is present in tap water, including water chemistry, the condition of an LSC and whether lead containing materials are present in the building's plumbing. Water in contact with any lead bearing plumbing materials can leach lead into the drinking water and pose a risk to anyone, but specifically pregnant women, infants and children.

The City is responsible for the City owned portion of the service connection from the water main to the property line. The property owner is responsible for the privately owned portion of the service connection from the property line into the home, as well as in-house plumbing (Appendix A).

The City does not maintain records of the material used in the private side service connections. Approximately 12,000 buildings in Regina were constructed in areas and during time periods (up to approximately 1960) when lead pipes were historically used. A map of this area, including the number of remaining City owned LSCs (approximately 3,600) can be found in Appendix C. We estimate that 7,000 to 8,000 privately owned LSCs may remain.

Replacing only the City owned portion of LSCs does not solve the issue of lead in drinking water if lead plumbing materials also exist on the private side. Disturbing the service connection without completing a full LSC replacement has been shown to increase lead concentrations in the tap water supplied to residents immediately after replacement and, has not been shown to significantly reduce lead levels over time. To ensure that all lead is removed from the LSC at the time of replacement, each location will need to be investigated prior to the replacement to determine where lead exists. This will entail entering residents' homes to inspect the private side of the service connection.

Appendix A contains background information and activities of the current LSCMP.

Recommendations

Administration is recommending the following options:

Replacement Option 2: Advancing the target completion to 2036 (15 year replacement program):

- Doubling the number of LSC replacements per year, for a total of approximately 240 LSCs per year.
- Increasing the necessary budget by \$1,950,000 (from \$1,200,000 to \$3,150,000) per year for replacements and three additional FTEs as well as additional organizational support (legal, taxation, communications, etc.) for administration of the program.
- Increasing the necessary utility rate by a dedicated two per cent in 2022, which would result in approximately a \$3.16 per month increase for a typical residential customer.

Appendix C compares the cost analysis of the recommended Replacement Option with alternative options.

Program Support Option 3: Increased Service Support for Locations with City Owned and Private Side LSC Replacements

Administration recommends the mandatory replacement of the privately owned LSCs when a City owned LSC is replaced. Replacing only the City owned portion of LSCs does not solve drinking water concerns if lead plumbing materials also exist on the private side. Disturbing the service connection when replacing the City side may also result in increased lead concentrations in the water at the tap. Therefore, it is important to replace the private side and City owned LSC at the same time.

This would require an agreement between the City and the property owner. This agreement would outline the payment options for the property owner, what happens if the property owner fails to repay the City, and what happens if the property is sold or transfers ownership, etc. It is estimated that the cost to replace a private side LSC is approximately \$5,000 - \$10,000, depending on the length, surface restoration, etc. Further details necessary to administer the recommended options will be brought forward as part of the second report if approved by Council.

Administration also recommends that City Council approve the increased service support for residents required to replace the private side of an LSC when the City owned side is replaced by:

- Allowing an interest-free coordinated program, where the private and City side of the LSC are replaced at the same time and including the following payment options:
 - Direct payment to contractor at the time of replacement.
 - Five Year Equalized Payment Plan, plus up-front administration fee of \$240.
 - Ten Year Equalized Payment Plan, plus up-front administration fee of \$365 (available only to property owners who meet the City's Affordable Access Program criteria). Please refer to Appendix E for an example of the City's Affordable Access Program Application.

Program Support Option 4: Increased Service Support for Locations with Only Private Side LSC Replacements (Where No City Side LSC exists)

Administration recommends that City Council approve the increased service support for residents with private side only LSCs by:

- Allowing an interest-free program available to property owners with private side only LSCs, where the City side LSC has previously been replaced, with the following funding options:
 - Five year Equalized Payment Plan, plus up-front administration fee of \$240.
 - Ten year Equalized Payment Plan, plus up-front administration fee of \$365 (available only to property owners who meet the City's Affordable Access Program criteria).

The focus of the recommendations is to enhance the current LSCMP activities (Appendix A) and provide increased support to residents with LSCs while continuing to provide educational material, testing options and continuous filters to eligible residents until a full LSC replacement occurs.

As this is a multi-year program, there will be future opportunities for City Council to refine or change the selected policy direction based on technical information and public input.

The recommended program activities will require developing legal and compliance tools for the necessary replacement agreement between property owners and the City and the implementation of bylaw changes that Administration will bring back to Council. Council approval of these tools will need to be obtained prior to implementation. The anticipated date of the approved changes would come into effect in early 2022. The funding required for the accelerated LSCMP would come through the 2022 Utility Budget approval process.

In order to accelerate the replacement schedule of LSCs in the city, the following elements are considered essential and the details of which will be addressed in the subsequent report brought to Council in quarter four of this year:

1. Mandatory replacement of the private side of the LSC when the City owned portion is replaced. The partial replacement of LSCs is not best practice and risks exposure to elevated levels of lead in drinking water for residents. This requires:
 - a. Amendments to *The Regina Water Bylaw*.
 - b. Increased administration resources.
2. Enhancement of capital programs including:
 - a. Development of a block-by-block replacement program, which is necessary to:
 - i. properly manage impacts to roadways.
 - ii. create an efficient schedule to coordinate with residents as well as other City activities.
 - iii. minimize replacement mobilization costs between locations.
 - b. Increased data collection to determine private side service connection material to the best of our ability through inspection.
3. Allow residents the ability to complete replacement of their private side LSCs on their own timeline through:
 - a. The current LSCMP City owned replacement application process.
 - b. The recommended Program Support Option 4.

4. Administration will develop the necessary structure to allow homeowners the ability to apply the cost of private side LSCs to property taxes.

The recommended options address the motion MN19-23, approved by Council, as follows:

1. Although the recommended 2036 Target Completion is not the target completion date of the motion, it accelerates the timeline by 15 years and is consistent with, or better than, most municipalities that are dealing with this issue.
2. The recommended Program Support Options includes the replacement of the private side of the LSC and allows residents to repay the cost of the private side replacement up-front or over time.
3. Administration will continue to move forward with a Corrosion Control Plan. The addition of orthophosphate to the City's water supply to mitigate lead content in the water requires alignment with the completion of upcoming upgrades to the BPWTP. Details of the Corrosion Control Program will be included in the annual LSCMP update following the completed upgrades to the BPWTP. Further discussion of Corrosion Control can be found in Appendix F.
4. The recommended Program Support Option includes enhanced communication with homeowners about the nature of LSCs and their potential impacts.
5. The recommended Options will continue to be funded out of the Utility fund.

The recommended options focus on protecting public health by reducing lead at the tap, accelerating the replacement of LSCs in the city and providing support to residents through construction coordination and payment options for replacements.

DECISION HISTORY

In 2017, (CR17-74), City Council approved additional elements for the LSCMP, including testing and a water filter program for residents.

In 2018, (CR18-27), City Council received an update of 2017 and proposed 2018 program activities. Administration was directed to provide a report to Public Works and Infrastructure (PWI) Committee annually on the progress of the LSCMP.

In April 2019, (PWII9-9), a report was submitted to PWI to provide an update on the progress of the LSCMP.

On December 3, 2019 (MN19-23), Council approved a motion that Administration prepare a report for Public Works and Infrastructure Committee in March 2020 that considers and analyzes potential enhancements to the LSCMP, including but not limited to:

1. Accelerating the program to ensure that all lead service connections are replaced by 2025.

2. Expanding the program to include the replacement of the homeowner's side of the connection as well as the City's side:
 - a. Incorporating best practices of other cities and creating a support program that would see the City fund part or the whole of replacement costs up-front, with residents repaying the amount over time.
3. Extending the period of time filters are provided to homeowners until such time as the Connection Management Program is completed.
4. Adding orthophosphate to the City's water supply to mitigate lead content in water.
5. Enhanced communication with homeowners about the nature of lead connections and their potential impacts.
6. That the program continues to be funded by the Utility.

On March 25, 2021, as part of the 2021 Utility Budget, City Council approved a continuous supply of water filters for eligible residents as part of the LSCMP.

The recommendations contained in this report require City Council approval.

Respectfully submitted,



Director, Water, Waste & Environmental Services

Respectfully submitted,



Executive Director, Citizen Services

Prepared by: Laine Froehlich, Technologist II-Water & Sewer Services

ATTACHMENTS

- Appendix A - Service Connection Diagram and Current Program Description
- Appendix B - Municipal scan
- Appendix C - City Owned Lead Water Service Connections 2020
- Appendix D - Target Replacement Years Cost Analysis
- Appendix E - 2021 Affordable Access Application
- Appendix F - Corrosion Control